DOCUMENT RESUME

ED 249 977 IR 011 421

AUTHOR Bell, Barbara
TITLE Middle Childhood. Skills Essential to Learning Television Project: Working Paper.
INSTITUTION Agency for Instructional Television, Bloomington, Ind.
PUB DATE Jan 81
NOTE 23p.; For related documents, see IR 011 420-428.
AVAILABLE FROM Agency for Instructional Technology, Box A, Bloomington, IN 47402 ($2.50 per copy).
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Intellectual Development; Intermediate Grades; Literature Reviews; *Moral Development; *Physical Development; *Preadolescents; Research; *Social Development; *Student Characteristics
IDENTIFIERS *Skills Essential to Learning Project

ABSTRACT

A review of the literature of middle childhood was conducted to provide background information for instructional designers and scriptwriters from the Skills Essential to Learning Project, which develops television/film series and related print materials for different grade levels to enhance the teaching of thinking skills in the context of major curriculum areas. Emphasis was on the physical, intellectual, and social/moral characterstics (relating to rules, authority, judgment of right and wrong, truth and lies, and justice) of 9- and 10-year old children. Results indicate that physical development proceeds more or less automatically, children show much greater individual differences at any given age than adults, and girls generally mature earlier than boys. Intellectual development is characterized by the emergence of logical reasoning skills that children are able to apply to concrete situations. Socially and morally, these children typically have the ability to view a situation from another's perspective and are active participants in maintaining the social order. (LMM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

The document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

MIDDLE CHILDHOOD

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Roy Morgan

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

The Skills Essential to Learning Project (SEL) is a cooperative effort by state and provincial agencies to strengthen learning skills instruction in American and Canadian Schools. The Project develops television/film series and related print materials for different grade levels to enhance the teaching of thinking skills in the context of major curriculum areas. It is organized and managed by the Agency for Instructional Television, a non-profit American-Canadian organization established in 1973 to strengthen education through television and other technologies. AIT develops joint program projects involving state and provincial agencies, and acquires and distributes a wide variety of television and related printed materials for use as major learning resources. It makes many of the television materials available in audiovisual formats. AIT's predecessor organization, National Instructional Television, was founded in 1962. The AIT main offices and Midwestern office are in Bloomington, Indiana; there are also regional offices in Washington, D. C., and San Francisco areas.

The working paper reported here was written by Barbara Bell, an independent consultant.

MIDDLE CHILDHOOD

January, 1981

Skills Essential to Learning
Box A
Bloomington, Indiana 47402

IR011421

Physical Development

Middle childhood, ages 8 to 10, is usually characterized by relative stability. Physical development is proceeding more or less automatically, although the rate of growth varies from one individual to another, as it has throughout childhood. "It is not at all uncommon for a fourth grade classroom to contain a few children who are five feet or more tall and/or of muscular build, and a few other children who are barely three feet tall and/or immature in appearance" (Brophy, 1977, p. 318).

Physical growth patterns are very uneven and children show much greater individual differences at any given age than adults. However, physical growth -- including size, muscular development, motor coordination, strength, mature dentition -- and other related physical developments will continue automatically if children receive the proper nutrition and exercise. Neither is difficult for them to obtain as the majority of children at this age eat continuously and play keeps them in constant motion, so they use all their muscles.

Even though the rate of growth varies with the individual child, girls generally mature earlier than boys and maintain this advantage throughout childhood. This is true not only of physical size but of motor coordination, athletic ability and other factors related to physical development.

Freud identified those in middle childhood as being in the latency psychosexual stage. This means that they repress their childhood sexuality,

freeing energy for concentration on the tasks of childhood, both intellectual and socio-personal. The transition into adolescence, which will re-awaken the physical awareness of their sexuality, will not begin for girls until 10 to 13, for boys until 12 to 16. In the meantime, they will learn the social roles of their sex.

Intellectual Development

What we know about the intellectual development of children is based primarily upon the work of Piaget. Most psychologists use his theory, which identifies stages of mental development as a basis for studying the evolution of the child's thinking skills. His work in this area has been validated and expanded upon by the work of other psychologists such as Inhelder, Elkind, Flavell, Kohlberg and others.

Stage of Concrete Operations in Mental Development

According to Piaget's discoveries about mental development, the fourth grade child is in the third stage of mental development, *concrete operations*, and will move into the final stage of mental development, *formal operations*, in a few years. The concrete operations stage, lasting from about age 7 to 11, is characterized by the emergence of logical reasoning skills which the child is able to apply to the solution of concrete problems. Prior to reaching this stage of intellectual development, children tend to solve problems by using only their perceptions rather than logical reasoning. The formal operations stage, beginning at about age 11 or 12, is the stage in which they will finally be able to apply logical reasoning skills to abstract hypothetical or verbal problems.

> If the concrete operational child is presented with a purely verbal problem, he is typically unable to solve it correctly. If the same problem is presented in terms of real objects, the child can apply his logical operations and solve the problem. Thus, the concrete operational period can be viewed as providing a transition between pre-logical thought and the completely logical thought of the older child (Wadsworth, 1976, p. 90).

Piaget's stages of mental development are not meant to suggest that development of mental abilities progresses from discrete stage to discrete stage, rather that development flows along in a cumulative manner, each successive step becoming integrated with previous steps. According to Wadsworth, "The age spans that have been suggested by Piaget are normative and only suggest the times during which most children can be expected to display the intellectual behaviors that are characteristic of the particular stage" (p. 27). A fourth grade child in the concrete operations stage might display some of the behavior associated with earlier stages or later stages of development. "The age at which stages occur can vary with the nature of both the individual's experience and his heredity potential. Progress through stages is not automatic" (p. 28). However, according to Piaget's theory, every child must pass through the stages of cognitive development in the same order. This paper will discuss some of the specific intellectual skills that are typical of the fourth grade child, bearing in mind that individual children may vary in their development of these skills.

The ability to transform operations. An 8 to 10-year-old child "can solve problems involving transformations and is aware of and understands the relationship between successive steps." A younger child would be "unable to coordinate and focus on the successive steps in a transforma-

tion. Each step in a transformation was viewed as independent of each successive step. There was no awareness or attention paid to the sequence or transformation involved" (Wadsworth, p. 93).

The ability to reverse operations. One of the most important intellectual skills attained in middle childhood is the ability to reverse operations. Wadsworth notes that "reversibility is the ability to carry a thought backward as well as forward in time, to reverse a thought." For example, when three balls go into the top of a cylinder, A B C, the younger child can correctly predict that they will come out the bottom of the cylinder, A B C. But if the cylinder is turned 180 degrees while the balls are inside, the younger child still predicts that the balls will come out the bottom, A B C. The middle age child can correctly predict that they will come out the bottom in reverse order, C B A (p.19). Such reversibility of thought may be necessary for operation solutions to problems that require logic to triumph over perception.

The ability to solve advanced conservation problems. Another of the more important intellectual skills that the 8 to 10-year-old child attains is the ability to solve advanced problems of conservation (Wadsworth, p. 95). The principle of conservation is that the amount or quantity of a matter stays the same regardless of any changes in shape or position. The younger child understands conservation of number and area but not of volume. One problem relating to conservation of volume involved filling two containers of equal size and shape with equal amounts of liquid, then asking the child if there is the same amount of liquid in each container. Both younger children and those in middle childhood

will say the amount of liquid is equal. When the liquid in one of the containers is poured into a taller, thinner container, younger children who center upon one perceptual feature of an object and do not have the ability to transform information from one state to another, will say that the tall, thin container contains more liquid. Those in middle childhood who have the ability to look at all the salient features of an object (i.e., height and volume), understand transformations, and reverse operations, will say that the two containers contain equal amounts of liquid. If the liquid is poured back into the original container from the tall, thin container, younger children will say that the amounts of liquid are again equal, but not because they have reversed the operations. Those in middle childhood have the ability to solve conservation problems of number, mass, area, weight, and volume.

The ability to seriate. Those in middle childhood have also acquired the ability to "mentally arrange elements according to increasing or decreasing size" (Wadsworth, p. 95). They can also order events in a series -- Piaget calls this seriation. The younger child could tell which object was the longer or the shorter of two objects, but could not mentally arrange several objects in a series according to increasing or decreasing size. The fourth grade child, 9 to 10, can seriate length, weight, and volume.

The ability to classify, using multiple dimensions. Children of 8 to 10 years have advanced classification skills. Younger children can do simple classification problems like classifying by color or by material (i.e., wooden) but cannot take into account two kinds of classes simultaneously. Those in middle childhood can compare the number of

objects, like beads, on two dimensions at a time. They can compare the number of beads, both by color and material, realizing that there are more wooden beads than brown beads when all the beads are wooden. Younger children will compare only by color, saying there are more beads of one color or another. Those in middle childhood realize that objects can have two identities, and understand the relationship of a subclass to a larger class (Elkind, 1974, p. 29). An extension of this ability is an ability to hold both symbol and referent, two dimensions, in mind at the same time (p. 77).

The ability to deduce causality. During middle childhood, the ability to logically deduce causality develops. The younger child has an ability to determine the cause of events when they can be perceived by the senses, but with the development of logical thinking skills during middle childhood, the child can use logical thinking to determine causality, at least about physical phenomena.

"By the end of middle childhood, age 10 to 11, the child has finally grasped the relationship between speed and time (velocity = distance/time). Prior to this, an object is considered to travel faster than another object only if it overtakes it while moving" (Wadsworth, p. 99). Younger children will say that the car that reached its destination first traveled faster, no matter how much farther the other car had to travel. Some fourth grade children may have grasped this concept; some may not have.

Brain Growth Theory

Recently Herman T. Epstein (1977) and others have been examining physical growth of the brain as an explanation of mental development. These researchers say that brain growth spurts are correlated with mental growth spurts. Biologically the brain increases by about thirty percent after

birth. The brain is made up of protein, RNA, and myelin (the insulating material of nerve axons). "If the number of nerve cells is not increasing, then existing cells must be growing larger and sending more axonal and dendritic processes...Growth appears in the increased complexity of the nerve networks in the brain" (p. 6). This is "sure to indicate additional kinds of thinking complexity." That mental growth increases in stages has been shown by the four decades of work by Piaget and in studies by Brown, Webb, and others. Researchers in brain growth compared these mental growth stages with incremental growth in head circumference and found that there are both physical (brain or head size) growth spurts and mental growth spurts between 3 and 10 months, and at 3, 7, 11 (or 12), and 15 years. Correspondingly, the periods of slow growth are between birth and 2 or 3 months, from 11 months to 2 or 3 years, from 4 to 7 years, from 8 to 10 years, and from 12 to 14 years. According to this theory, the fourth grade child, age 9 to 10, would be in a slow growth period. He would be qualitatively less capable of absorbing new kinds of intellectual inputs. Epstein quotes Piaget as saying that the period between spurts of mental development are times of maturation and consclidation of the new competencies. Epstein talks about the ramificatians of brain growth research for adolescents, saying that instruction should be tailored to the fact that they are in a slow growth period. It seems that the same might be said of fourth grade children. Perhaps they should be consolidating a great many of the new abilities acquired as a result of the brain growth spurt which occurred at the age of seven.

Implications for Learning Mathematical Concepts

Wadsworth also points out that:

> Piaget provides some principles of how children develop and acquire mathematical concepts. He does not state specifically how instruction should proceed, although his theory makes some clear suggestions for mathematical instruction. First, mathematical concepts can be constructed by the child only out of his spontaneous actions on objects. Second, the child can comprehend the representation of mathematical processes only after he comprehends the use of signs. Third, the child should have comprehension of mathematical concepts before he is encouraged to deal with mathematical concepts symbolically, i.e., use numbers (p. 168).

Piaget laments the fact that at the elementary school level, children are expected to learn mathematical concepts primarily by working with numbers. When they do not have formal operations abilities, they cannot be expected to learn concepts from books or from teachers' demonstrations or lectures. Young children especially must construct concepts by experience before working with representations of the concepts. Table I shows which mathematical concepts fourth-grade children have developed or are developing (Wadsworth, p. 169).

Table 1.

Mathematical Concepts of Fourth Grade Children

Concepts probably already mastered	Concepts probably being mastered	Concepts advanced fourth graders may be mastering
Topological space	Associativity	Deduction/Induction
Classification	Distributivity	Formal logic
Seriation	Space	Time
Number Conservation	Time	Proofs
Length Conservation	Movement, Velocity	
Area Conservation	Volume	
Closure	Measurement	
Addition of Classes	Functions	
Multiplication of Numbers	Proportions	
Euclidean Space		
Multiple Classification		
Identity		
Commutativity		

Social/Moral Development

Wadsworth notes that Piaget found the young child's thinking dominated by:

> ...egocentrism, an inability to assume the viewpoint of others and a lack of need to seek validation of his own thoughts. The concrete operational child's thinking is not egocentric in this respect. He is aware that others can come to conclusions that are different from his, and as a consequence, he comes to seek validation of his thoughts...Liberation from egocentrism, according to Piaget, comes about primarily through social interaction with peers (p. 91).

Socialization of behavior is a continuous process that begins in early childhood with simple imitations. The child progresses through the various phases of social and moral development as his contact with peers increases. The child's progress will be inhibited without social interaction with peers because social interaction with adults is of a different nature; adults are authority figures to be obeyed. Only when he has the opportunity to interact with those who are his social equals can he experience cooperation rather than obedience.

Cooperation is made possible by the ability to take the perspective of others. This new ability to take another's perspective is seen in the development of conversational skills, the development of true friendships, the development of social roles, and the development of the ability to make moral judgments.

Conversation

The language of fourth-grade children reflects their recently acquired social skills. "The collective monologues which characterized the younger child's speech are usually not present. Children exchange

information with each other in their conversations and learn to speak from the viewpoint of others" (Wadsworth, p. 92).

Friendships

Individual friendships between young children tend to be based upon proximity and similarity of interests and therefore are relatively unstable. However, during middle childhood, friendships become more stable, since friends are more likely to be selected because of their special qualities. Close friendships are almost always between those of the same sex. Several authors have stressed that these close friendships represent the emergence of true interpersonal intimacy. Sullivan (1953) says that in these relationships "the wishes, interests, and feelings of the friend begin to assume an importance equaling one's own... the child who has found such a close friend begins to develop a real sensitivity to what matters to the other person and to consider his own actions in terms of what they will mean to the other" (Ferguson, p. 154). Friendship is seen as a relationship that is in the reciprocal interest of the two parties. It is established by demonstrating that one may be relied upon to help; reciprocal trust is a defining element of the relationship. Friendships may be terminated by a refusal to help, or by the commission of an act that is considered untrustworthy (Damon, 1979, p. 16).

Sex Roles

Ferguson (1970) points out that during middle childhood there is an increased differentiation of sex roles:

> Boys come to make sharper discriminations of activities and personal attributes that are appropriate to their own sex and to reject feminine characteristics. Girls, on the other hand, still prefer feminine items to a large extent but show an increasing tendency toward cross-sex choices. An appreciable proportion of girls say they would like to have been boys, whereas boys are highly unlikely to say they would like to have been girls (p. 146).

This increased differentiation of sex roles parallels the tendency for those in middle childhood to seek the companionship of their own sex. Except for an occasional tomboy, who is tolerated by the male play group, females are rejected by males and vice versa. The resulting like-sexed play groups reflect and reinforce the different characteristics that identify members. The male play groups value the characteristics of competence, competitiveness, and acceptable forms of aggression, while the valued female characteristics are passive dependency and emotionality.

The segregated peer groups also seem to serve somewhat different functions for males and females. For males, the group serves as an arena in which they can develop and demonstrate competence of various sorts and measure themselves against others. In female groups, the primary goal seems to be affiliation with and acceptance by the group in and of itself.

Moral Judgment

The development of a child's social and moral orientation progresses from domination by external laws or forces to self-governance. Progress is made possible by the increased understanding of operational thought. Kohlberg identified six stages of moral judgment. During the first two stages, the child is responsive to cultural rules and labels of good and

bad, right or wrong, but interprets these labels in terms of the consequences of actions or the physical power of authority figures (Duska and Whelan, 1975, p. 45). Most fourth grade children are beyond this orientation toward moral judgment. They fall somewhere within the next two stages. In these:

> Maintaining the expectations of the individual's family, group, or nation is perceived as valuable in its own right, regardless of immediate and obvious consequences. The attitude is not only one of conformity to personal expectations and social order, but loyalty to it, of actively maintaining, supporting, and justifying the order and of identifying with the persons or group involved in it. At this level, there are two stages:
>
> Stage 3: The Interpersonal Concordance of 'Good Boy-- Nice Girl' Orientation. Good behavior is that which pleases or helps others and is approved by them. There is much conformity to stereotypic images of what is majority or 'natural' behavior. Behavior is frequently judged by intention: 'He means well' becomes important for the first time. One earns approval by being 'nice.'
>
> Stage 4: The Law and Order Orientation. There is orientation toward authority, fixed rules, and the maintenance of the social order. Right behavior consists of doing one's duty, showing respect for authority and maintaining the given social order for its own sake (p. 46).

The last two stages of moral judgment -- five and six -- usually occur in the intellectual development stage of formal operations. It is in these stages that children finally approach self-governance and the idea that their individual consciences may supersede rules at times. Many authors have stressed that with moral judgment, just as with intellectual development, a child may be at one stage in one judgment, and at another stage in a different judgment; a child could be authority-governed in one case and self-governed in another.

Most authors discuss the child's moral judgment with regard to rules, authority, right and wrong, truth and justice. All of these are important in understanding the social behavior of the child.

Rules. It is in their adherence to and practice of rules that nine-to-ten-year-olds differ most from the young child. All children are interested in rules, but children of this age are obsessed with them. This can be seen in the strict adherence to rules during games and group activities. Young children obey rules because they are an external authority. Those in middle childhood have a strong desire to cooperate, to help others, and be thought of as good. Thus they develop an understanding of the purpose and origin of rules. Younger children respect rules as something divine but do not have adequate understanding or motivation to be consistent in the practice of them (Duska and Whelan, pp. 13-14). Nine-to-ten-year-olds practice rules in a spirit of cooperation and are conscious that they are a product of mutual consent.

Authority. For those in middle childhood, authority must be legitimized by some prior training or experience. For the younger children it was enough that the authority figure was more powerful than they; obedience was based upon their respect for that power. For those in middle childhood, obedience is based on respect for this specific leadership ability, or on the belief that the leadership implies a concern for the welfare and rights of subordinates (Duska and Whelan, p. 13-14). Obedience may also have some base in respect for the social order.

Judgment of right and wrong. At this age, when judging the rightness or wrongness of an act, children will take into account the intentions of an action as well as the amount of harm done. Young children would judge the child who broke a very expensive lamp more harshly than

the child who broke a pencil, even if the lamp was broken by accident and the pencil was broken on purpose. Those in middle childhood begin to consider the intentions of an act along with such factors as the quantity of harm done or the degree of punishment that will result from the act.

Truth and lies. The concepts of the truth and falsehood are viewed somewhat differently by those in middle childhood than by young children. Young children define a lie as any statement that is not true, regardless of whether the speaker knew that the statement was not true. By middle childhood they define a lie as any statement that is intentionally false. Truth becomes important at this age, not because it is against the rules to tell a lie or because lies will be punished, but because the child has a strong desire to cooperate in various expanded relationships of mutual respect and has a need for the truth. "It is through experiences of cooperative living in the various communities of which the child is a part that he develops an understanding of lying as a violation of community trust " (Duska and Whelan, p. 22).

Justice

The younger child is likely to feel that justice is making the wrongdoer suffer for his wrongdoing. However:

> Between the ages of eight and twelve when cooperation and mutual respect are developing, notions of expiatory punishment diminish in favor of punishments that restore the social bond, that is, punishment by reciprocity. Fair punishments, then, are those that are related to the offense, either by making the offender suffer the material consequences of his act or omission, or by doing to the offender something comparable to what he has done. They do not choose the punishment that hurts the most, but the ones that relate to the offense committed (p. 28).

Thus children begin to balance equality and reciprocity, to take into account the claims of various persons as well as the demands of the specific situation, in judging whether a decision or action is just. Their judgments are usually firm and clear cut, reflecting a decision as to which claim is most appropriate to the situation (Damon, p. 97). For this age child, equality is the strongest criterion for justice, and usually outweighs obedience to authority, and even cooperation or friendliness (Duska and Whelan, p. 36).

Summary

Nine- and ten-year-old children typically have the following physical, intellectual and social/moral characteristics.

I. Physical development is proceeding more or less automatically as it has throughout childhood.

   A. Since growth patterns are uneven, children show much greater individual differences at any given age than adults.

   B. Girls generally mature earlier than boys.

II. Intellectual development at ages 9 to 10 is characterized by the emergence of logical reasoning skills that children are able to apply to concrete situations.

   A. They are able to take into account all relevant perceptual data in solving problems.

   B. They can solve problems involving transformations and are aware of and understand the relationship between each successive step.

   C. They can reverse operations.

   D. They can solve most conservation problems.

   E. They can seriate objects and events.

   F. They understand the relation of a subclass to a larger class.

   G. They can use reasoning to determine the causality of physical events.

   H. They have grasped the relationship between speed and time; speed = distance/time.

   I. They may be at the end of a period of slow brain growth, during which they have consolidated earlier learning.

III. Socially and morally, 9- and 10-year-old children typically have the abilith to view a situation from another's perspective and are active participants in maintaining the social order.

   A. They can understand and empathize with the viewpoint of others. Conversations reflect this ability.

   B. They are developing a strong desire to cooperate. They seek to win approval by being "nice."

C. They begin to form stable friendships, based upon individual qualities of the friend rather than proximity or mere similarity of interests.

D. There is an increased differentiation of sex roles. Males reject feminine characteristcs and females reject male characteristics for the most part, but females show an increasing tendency toward cross-sex choices. They conform to stereotypical images of behavior.

E. Males associate with other males and reject females for the most part. Likewise females associate with members of their own sex and reject males.

F. They are obsessed with maintaining rules and the social order. They are interested in rules for rules' sake.

G. They practice rules in a spirit of mutual cooperation.

H. They have an understanding of the purpose and origins of rules.

I. They believe obedience to authority is based upon respect for leadership ability or on leadership concerned for the welfare of all.

J. They understand that behavior is judged by its intention as well as its results.

K. They understand that truth is important for cooperation in various relationships. A lie is defined as any statement that is intentionally false.

L. They believe that punishment should take the form of reciprocity.

M. They believe that equality is the strongest criterion for justice and may even outweigh obedience and friendliness.

References

Brophy, J. E. Child development and socialization. Chicago: Science Research Associates, Inc., 1977.

Damon, W. Social-cognitive prerequisites for citizenship education in the elementary and secondary school years. Paper presented to Allegheny Intermediate Unit, Pittsburgh, Pennsylvania, April 18, 1979.

Duska, R., and M. Whelan. Moral development: a guide to Piaget and Kohlberg. New York: Paulist Press, 1975.

Elkind, D. Children and adolescents: interpretive essays on Jean Piaget. 2nd ed. New York: Oxford University Press, 1974.

Epstein, H. T. A neuroscience framework for restructuring middle school curricula. Transescence, The Journal of Emerging Adolescent Education, May, 1977, pp. 6-11.

Ferguson, L. R. Personality development. Belmont, California: Brooks/Cole Publishing Co., 1970.

Flavell, J. H. Cognitive development. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1977.

Wadsworth, B. J. Piaget for the classroom teacher. New York: Longman, 1978.

Wadsworth, B. J. Piaget's theory of cognitive development. New York: David McKay Company, Inc., 1971.

Selected AIT Research Publications

This list includes research reports from AIT and its predecessor organizations, NITL, NCSCT, and NIT. Most of these reports have been distributed widely and may be obtained from AIT (cost, if any, is indicated) and from the ERIC system. For a complete list of AIT research publications write to: Research Department, AIT, Box A, Bloomington, Indiana 47401.

AIT RESEARCH REPORTS

Report of "Ripples" Evaluation Activities to the Consortium Members. NITC, July 1970.

"Images & Things" Evaluation Report to Consortium Members. NITC. September 1971.

The "Inside/Out" Evaluation: The First Five Programs, Parts I and II. Bureau of Public Discussion, Indiana University, July 1972. $5 (ED 070 250 and ED 070 251)

"Ripples": A Third-Year Survey. AIT, December 1973.

Report on Evaluation Activities of the "bread & butterflies" Project. Educational Testing Service and AIT, October 1974. $3 (ED 097 921)

Formative Evaluation of "Self Incorporated" Programs (Research Report 30). AIT, January 1976. $5 (ED 119 712) Summary. (ED 119 711)

"Inside/Out" Teacher's Guide Survey (Research Report 31). February 1976.

A Compilation of Instructional Television Series for Secondary School Use (Research Report 38). June 1976.

AITATTN: The AIT Attention Plotting Program (Research Report 45). January 1977.

Affective Films for the Hearing Impaired Child: A Test of Captioned "Inside/Out" Programs (Research Report 46). April 1977.

A Challenging Picture: The Status of ITV Utilization in Secondary Schools (Research Report 47). June 1977.

Research on the Use of Television in Secondary Schools (Research Report 48). June 1977.

School Television in the Archdiocese of New York (Research Report 51). July 1977.

The ITV Experience at Evanston Township High School (Research Report 52). July 1977. No Charge.

An Experiment in Autonomy: Secondary School Television Use in Two Coastal Georgia Schools (Research Report 53). July 1977.

The Allegheny Educational Broadcast Council: Instructional Television in Central Pennsylvania (Research Report 54). July 1977.

Field Test of Trade-offs Program #4: Trade-offs Among Goals (Research Report 55). December 1977.

MeasureMetric Test Development (Research Report 56). December 1977.

A Responsive Evaluation of Inside/Out (Research Report 58). November 1977.

Field Test of Four Versions of Trade-offs Program #2: Malcolm Decides (Research Report 59). December 1977.

Testing of Trade-offs Four-Program Cluster (Research Report 60). December 1977.

Trade-offs #4: Effects of Lessons by Trained and Untrained Teachers (Research Report 61). December 1977.

The Status of Arts Education in the Public Schools (Research Report 62). January 1978.

A Compilation of Instructional Television Series in the Arts (Research Report 63). January 1978.

Guidelines to Media Utilization: Lessons from Project Discovery (Research Report 64). July 1978.

Survey of Library Facilities at Telecommunications and Educational Research Organizations (Research Report 65). August 1978.

ESSENTIAL LEARNING SKILLS RESEARCH REPORTS AND PAPERS

Background Papers

Byron G. Massialas, *Coping in the 1980's: Inquiry Skills and Participation in Decision-Making for Fifth and Sixth Graders.* 1976.

Karen P. Middleton, *Library Skills Instruction in the Fifth and Sixth Grades.* 1977.

John J. Patrick and Richard C. Remy, *Essential Learning Skills in the Education of Citizens.* 1977.

Philip Peak, *Teaching Mathematics: An Integration of Skill and Knowledge.* 1977.

Mary Lou Ray, *Communication, Fifth and Sixth Graders, and The Essential Learning Skills Television Project.* 1977.

Wilbur Schramm, *Some Notes on Research, Theory, and Production in Instructional Television.* 1977.

Research Reports

Review of State and National Assessment Information. March 1977.

Responses to the Essential Learning Skills Experimental Bulletin. April 1977.

A Program Evaluation Concept and Methodology—The Video Storyboard: An Evaluation of "The Public Library." May 1977.

Skills Review. June 1977.

Summary of Goals Sort Verification Activity. June 1977.

Surveys of Time Spent in Instructional Activities, of Instructional Resources, and of Instructional Themes. June 1977.

Preliminary Findings of Evaluation Data for the First Three Experimental Programs and the Hey Wait! Think, See, So Show Excerpt. November 1977.

Final Report of the Field Research on the First Three Experimental Programs. February 1978.

Summary Report of Experimental Phase Field Testing. February 1978.

Working Papers

Janet Alexander and Candace Garrett, *Fifth and Sixth Graders: Their Attitudes about Parents, Peers, School, and Themselves.* September 1976.

Candace S. Garrett and Patricia M. Marshall, *Cognition in Fifth and Sixth Grade Children.* February 1977.

James G. Greeno, *Solving Problems.* February 1977.

Donald J. Cunningham, *Learning Skills and Instruction.* June 1977.

Fred L. Perry, Jr., *Memory: As it Relates to Children Ages 9 to 12 Years.* June 1977.

Nancy Malacek Neubert, *Self-management as an Essential Skill: What the Business Literature Suggests.* July 1978.